ments of the kind described in this work. In the first place the substances must be of a very high degree of purity, and as the author justly remarks, there is usually no evidence that this has been the case. In the second, the difficulties experienced in maintaining temperatures which do vary at a greater rate than 0·002° per minute are enormous, and in dealing with substances enclosed in thick-walled capillary tubes, the temperature difference might be in some cases of the same order as the observed abnormalities were the temperature less steady.

Whatever may be the fate of the new theories or the opinion as to the value of some of the experiments on which they are based, we are indebted to the author for collecting and arranging this mass of information, and for bringing the points at issue so clearly before the scientific world. M. W. T.

THE B.M. HAND-LIST OF BIRDS AND CATALOGUE OF EGGS.

A Hand-List of the Genera and Species of Birds. Vol. iv. By R. B. Sharpe. Pp. xii+391. (London: Printed by Order of the Trustees, 1903.)

Catalogue of the Collection of Birds' Eggs in the British Museum (Nat. Hist.) Vol. iii. By E. W. Oates and S. G. Reid. Pp. x+349; 10 plates. (London: Printed by Order of the Trustees, 1903.)

WHEN the publication of the valuable "Hand-List" was commenced, it was considered that the work would be completed in four volumes. The fourth volume is, however, before us, and the author's task is far from being ended. This, as stated in the preface by the director of the Museum, is due to the unexpectedly large amount of space occupied by the Passeres (or Passeriformes, as the author prefers to call them), the number of named species of which group has been largely augmented during the progress of the work. Accordingly, in order to keep the present one of moderate dimensions, it has been decided to complete the work in five, in place of four, volumes. The fifth and concluding volume, it is satisfactory to learn, is in a forward state, and will probably be issued shortly.

Our opinion of the high value of this work having been already expressed in our notices of the earlier volumes, it need not be repeated here, although we must again state that it would have been an improvement had the dates of publication of the generic names been introduced. We are, moreover, debarred from criticising the right of certain forms and groups to specific or generic rank, for the author in this instance has been bound to follow the arrangement adopted in the "Catalogues."

All that remains open to us in the way of criticism is in relation to geographical and topographical names, and even here there is not much with which to find fault. We venture to think, however, that the author uses the term "Himalayas" or "Himalaya Mountains" in somewhat too wide a sense. Possibly he may be justified in including Kashmir in the "Himalayas," although scarcely in the "Himalaya Mountains," but there is no justification for calling Ladak (p. 147) a part of that system. Then, again, on p. 149 we find Murree (Murri) described as being in the *eastern* Himalaya. The author's spelling of that name—as Murri—is, moreover, without justification. Many years ago the Indian Government decreed that the names of well-known places were to be spelt in the old-fashioned way. If this ruling be followed, Murree is the proper orthography; if, however, the Hunterian system be followed, it should be Mari; Dr. Sharpe's "Murri" is neither one system nor the other.

If the proof-reading had been done a little more carefully, certain discrepancies in the printing of names might also have been avoided. We should not have had, for instance, in one place Amur-land (p. 138) and in another Amurland (p. 339), or Somali Land (p. 12) and Somali-land (p. 293), or Szechuen (p. 8) and Sze-chuen (p. 322), or Damara Land (p. 22) and Damara-land (p. 331). Again, we believe that Gansu (p. 321) and Kansu (p. 323) are one and the same. Finally, we do not like the phrase (p. 259) "Arctic and Subarctic regions of both hemispheres," which, although no doubt etymologically correct, sounds somewhat ambiguous.

In regard to the third volume of the "Catalogue of Birds' Eggs," the most notable feature is its dual authorship, or, to be precise, that it is written by Mr. E. W. Oates, assisted by Captain Savile Reid. The explanation of this is to be found in the preface, where it is stated that, owing to the ill-health of Mr. Oates, it had been found necessary to entrust the completion of the work to other hands. In the case of this volume the MS. was left in a forward state by Mr. Oates, and has been revised, together with the proofs, by Captain Reid, who has also incorporated in the text references to recently acquired specimens.

The present volume commences with the parrots, and includes the whole of the so-called "picarian" birds, together with a considerable number of the passerines, that is to say, from the Pteroptochidæ and Formicariidæ to the bulbuls (Pycnonotidæ). From what has been written above, it is scarcely necessary to add that the plan followed in this volume is the same as in its predecessors. Now that a change of authorship has taken place, we may suggest that the value of the work would be decidedly increased if the characteristics of the eggs of the different families and genera were given in some detail in the volume yet to come. As it is, no regular rule seems to have been followed in this respect, and it is therefore quite impossible to gather of what value are egg-characters in classification.

The exquisite plates illustrating this volume are, like those in its predecessors, reproduced from sketches by Mr. H. Gronvöld. Although the number of the plates is somewhat less than in vol. ii., the number of eggs figured is (owing to their smaller size) much greater. It may be added that small eggs, like those figured in this volume, form much more attractive octavo plates than is the case with the larger ones depicted in the earlier volumes, and whichever of the two authors is responsible for the grouping of the specimens figured he is to be congratulated, from an artistic point of view, on the result. As a rule, eggs

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which have not previously been figured are selected for illustration.

The total number of species catalogued in this volume is 907, and the number of eggs 8474; the latter are, however, very unevenly distributed among the various species, of many of which there is but a single egg in the collection. This is the case, for instance, with three out of the four species of "frog-mouths" catalogued, and likewise with many of the kingfishers, cuckoos, and humming-birds.

The collection is especially rich in eggs of the common cuckoo, associated in a large number of cases with the clutches laid by their involuntary foster-parents. After remarking on their variability in size, the authors state that the cuckoo's eggs likewise present a considerable range of diversity in colour and the character of the marking, although the great majority approach in these respects to the eggs of the meadow-pipit and skylark. Eggs of this type constitute the great bulk of the series in the collection. Some, however, like those associated with the eggs of *Ruticilla phoenicurus,* are blue, while one closely resembles that of a chaffinch. Curiously enough, cuckoos' eggs from hedge-sparrows' nests are of the ordinary type, and show no tendency to become blue. Altogether, the collection includes cuckoos' eggs taken from no less than forty-one different species of birds, ranging in size from a shrike to a fire-crest.

Did space permit, many other interesting points connected with öology might be mentioned; as it is, we must bring our remarks to a close with the expression of our opinion of the great interest of this unique work. R. L.

MODERN SCIENCE POPULARISED.

New Conceptions in Science. By Carl Snyder. Pp. xii+362. (London and New York: Harper and Brothers, 1903.) Price 7*s*. 6*d*. net.

In the absence of any preface, it is necessary for the reader to form his own opinions as to the aim or object of the book considered as a whole. This, evidently, is to arouse an interest in scientific work among unscientific people by telling the story of the discoveries of the day in unscientific language. We have here portraits of the man that weighed the crown of King Hiero, of the man that broke the atom into ions, of the man that caught and fought the deadly microbe, and other pioneers of science introduced in terms somewhat suggestive of those we have used above. Several of the illustrations show the discoverers at work in their own laboratories, and remind us that this book hails from the same land which in recent years has flooded our breakfast tables with portraits of literary men writing articles by the side of revolving bookcases.

We have spoken of the book as being written in unscientific language, but it would be better to describe the language as unconventional, unorthodox, and very funny to an English mind. As instances, we may quote "chips of atoms" as applied to corpuscles; Marconi is described as having "since the Salisbury Plain trials with kites, taken to the water wholly," and, later on, it is said of him, "Then the tireless experimenter looked out over waste seas, saw in fancy the foggy banks of Newfoundland and said confidently 'That's the next.'" Again, "The Hertz-waves have had a sort of Messianic history. They had been foretold." "This scale" (speaking of Centigrade) "is in universal use throughout the world save in two backward countries called England and the United States." (The author forgets that there are certain enlightened countries which still use Réaumur's scale.) "If like this mechanical eye our eyes were sensitive to these electrical waves, then we might watch the progress of a play in Buenos Ayres or have witnessed the struggles at Peking." "Those who were reared to the ideas of Clerk Maxwell, regarding electricity as a wave and wobble in the highly hypothetical ether, have not failed to implant upon the new theory their collective feet." Light and other waves are stated to "clip through space at 184,000 miles per second." "If, as Prof. Dolbear picturesquely remarks, we could some way get a 'kick' on the ether, space navigation would be easy. It does not seem impossible that we shall be able to do this within another hundred or two hundred years."

The book is not confined to physical science alone. It contains a chapter on Prof. Loeb's discovery of artificial parthenogenesis, another on the nature of life, in which is suggested the possibility of reversing the life processes and growing backward, and a chapter headed "The Spirit Rappers, the Telepaths and the Galvanometer." Seriously speaking, the most important chapter is undoubtedly that dealing with "America's Inferior Position in the Scientific World." In it, among other points, the author urges the necessity of founding an institution like our Royal Institution in America, and directs the attention of his fellow countrymen to their general backwardness in research. We over here are apt to think of the American man of science as being pretty well off in view of the large number of universities existing in the United States, and the large number of chairs attached to each of them, which should result in the individual professors having far more time for research work than they have in this country. If, however, the author succeeds in impressing on his fellow countrymen the need of devoting further endowments for the furtherance of research work pure and simple, the book will not have been written in vain. The danger is that the important part played in science by long formulæ involving dx's and dy's, inverted deltas and signs of integration will be overlooked. G. H. B.

APPLIED PSYCHOLOGY.

Outlines of Psychology: an Elementary Treatise with some Practical Applications. By Josiah Royce, Ph.D., LL.D., Professor of the History of Philosophy in Harvard University. Pp. xxvii + 392. (New York: the Macmillan Company; London: Macmillan and Co., Ltd., 1903.) Price 4*s*. 6*d*. net.

The number of persons who are anxious to study psychology in order to make themselves more efficient as teachers is already large, and is happily

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